Problem Statement -1

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <h1>MEAN Stack</h1>
        <p> Functions and functions_and_prototypes Demo </p>
        <script src="functions_and_prototypes.js"></script>
</body>
</html>
```

```javascript
// function constructor
function Employee(name, designation, yearOfBirth){
    this.name= name;
    this.designation= designation;
    this.yearOfBirth= yearOfBirth;
}

// creating calculateAge() method to the Prototype property
Employee.prototype.calculateAge= function(){
    console.log('The current age is: '+(2019- this.yearOfBirth));
}
console.log(Employee.prototype);


// creating Objects
let Emp1= new Employee('Alex', 'Junior Tester', 1995);
console.log(Emp1) ;
Emp1.calculateAge();

let Emp2= new Employee('Dexter', 'Senior Software Developer', 1990);
console.log(Emp2)
Emp2.calculateAge();

let Emp3= new Employee('Annie', 'Junior HR', 1998);
```
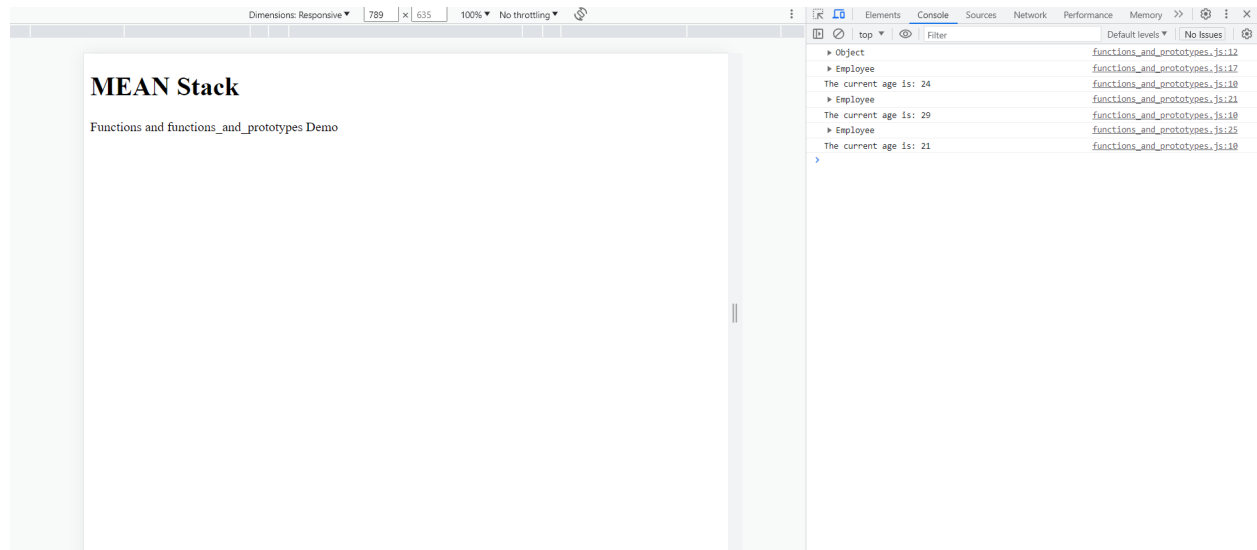
```
console.log(Emp3)
Emp3.calculateAge();
```

MEAN Stack

Functions and functions_and_prototypes Demo

```
▶ Object                                    functions_and_prototypes.js:12
▶ Employee                                  functions_and_prototypes.js:17
The current age is: 24                      functions_and_prototypes.js:10
▶ Employee                                  functions_and_prototypes.js:21
The current age is: 29                      functions_and_prototypes.js:10
▶ Employee                                  functions_and_prototypes.js:25
The current age is: 21                      functions_and_prototypes.js:10
>
```

Problem Statement -2

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <h1>MEAN Stack</h1>
        <p> Functions Demo </p>
        <script src="function.js"></script>

</body>
</html>
```
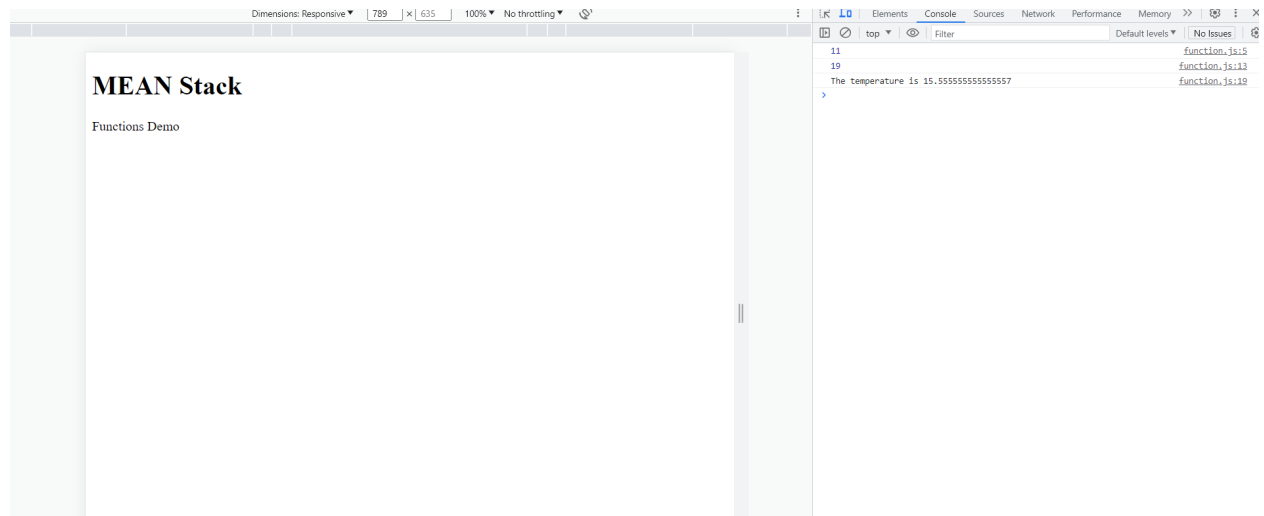
```javascript
var x = (2 * 3) + 5;
    var y = 3 * 4;


    var result = myFunction(2,3);
```

```javascript
    console.log(result);

    function myFunction(num1, num2) {
        var a = num1 * num2;
        var b = num1 + num2;
        return (a + b);
    }

    console.log( myFunction(3, 4));

    function toCelcius(f){
            return (5/9) * (f-32);
    }

    console.log("The temperature is "+ toCelcius(60));
```

MEAN Stack

Functions Demo

```
11                                                    function.js:5
19                                                    function.js:13
The temperature is 15.555555555555557                 function.js:19
>
```

Problem Statement -3

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
```

```html
    <h1>MEAN Stack</h1>
    <p> Callbacks and Closures Demo</p>

    <script src="IIFEs_Callbacks_Closures.js"></script>

</body>
</html>
```
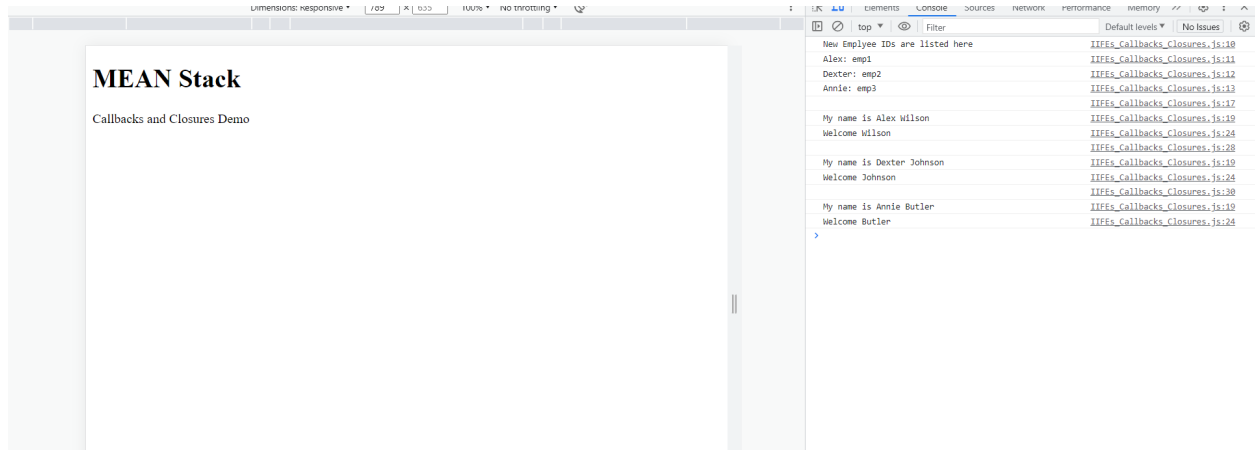
```javascript
//IIFE and Closure
const empId = (function() {
    let count = 0;
    return function() {
      ++count;
      return `emp${count}`;
    };
})();

console.log("New Emplyee IDs are listed here");
console.log("Alex: "+empId());
console.log("Dexter: "+empId());
console.log("Annie: "+empId());


//Callbacks
console.log("\n"); //to start the output from the neext line
function fullName(firstName, lastName, callback){
  console.log("My name is " + firstName + " " + lastName);
  callback(lastName);
}

var greeting = function(ln){
  console.log('Welcome ' + ln);
};

fullName("Alex", "Wilson", greeting);
console.log("\n");
fullName("Dexter", "Johnson", greeting);
console.log("\n");
fullName("Annie", "Butler", greeting);
```

Problem Statement -4

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <h1>MEAN Stack</h1>
        <p> Maps and classes Demo </p>
        <script src="maps_and_classes.js"></script>

</body>
</html>
```

```javascript
var map1 = new Map();
map1.set("first name", "Robb");
map1.set("last name", "Stark");
map1.set("friend 1","Bran")
    .set("friend 2","Arya");
console.log(map1);
console.log("map1 has friend 3 ? " + map1.has("friend 3"));
console.log("get value for key = friend 3 - "+ map1.get("friend 3"));
console.log("delete element with key = friend 2 - " + map1.delete("friend 2"));
map1.clear();
```

```javascript
console.log(map1);
class Employee
{
    constructor(id,name)
    {
      this.id=id;
      this.name=name;
    }
    detail()
    {
  document.writeln(this.id+" "+this.name+"<br>")
    }
  }
//passing object to a variable
var e1=new Employee(101,"Michael");
var e2=new Employee(102,"Bob");
e1.detail();
e2.detail();
```

MEAN Stack

Maps and classes Demo

101 Michael
102 Bob

▶ Map(0)   maps_and_classes.js:6
map1 has friend 3 ? false   maps_and_classes.js:7
get value for key = friend 3 - undefined   maps_and_classes.js:8
delete element with key - friend 2 - true   maps_and_classes.js:9
▶ Map(0)   maps_and_classes.js:11
>